POSSIBLE WATER CONSERVATION MEASURES FOR THE NEWLANDS PROJECT—Continued

Conservation measures[1]	Expected savings in acre-feet (AF) per year[2]	Notes
24. Acquire parcels with inefficient delivery[6]	22,280	Acquire and retire water rights from irrigated acreage with particularly inefficient delivery. Lesser savings from transferring water rights to lands with more efficient delivery.

[1]The first seven measures were considered in developing the water budget in Table 1 for the 1988 OCAP. Additional measures could be implemented by the District to help achieve efficiency requirements.
[2]Water savings have been updated in accordance with Bureau of Reclamation's Report to Congress on Newlands Project Efficiency, April 1994.
[3]++ indicates a positive number for savings but not quantifiable at this time.
[4]?? indicates uncertainty as to savings.
[5]This measure was included in the 1988 OCAP and effects overall Project efficiency; it is recognized that savings from this measure are not accounted for in the OCAP.
[6]Identified in the 1994 BOR Efficiency Study: 31 Corporation, below Sagouspe Dam, and N Canal.

(5) The measures in paragraph (c)(4) of this section are discretionary choices for the District. The range of measures available to the District provides a level of assurance that the target efficiency is reasonably achievable. The resultant efficiency targets were also compared to the range of efficiencies actually experienced by other irrigation systems that were considered comparable in order to provide a further check on "reasonable." Most of the delivery losses are relatively constant regardless of the amount of deliveries. The efficiency will necessarily vary with the amount of headgate deliveries.

(6) The target efficiency for any annual valid headgate delivery can be derived from the table in Appendix A to this part.

§ 418.13 Maximum allowable limits.

(a) *Maximum allowable diversions.* (1) A provisional water budget in the Newlands Project Water Budget table must be recalculated for each irrigation season to reflect anticipated water-righted acres to be irrigated. At the start of the irrigation season, the maximum allowable diversion (MAD) for each year must be determined by revising the first 10 lines of the Newlands Project Water Budget table based on acres of eligible land anticipated to actually be irrigated in that year (§ 418.9(a)) and the water duties for those lands (§ 418.10). At the end of the irrigation season, the required target efficiency must be recalculated for the irrigation season based on the actual irrigated acres and percent use of headgate entitlements.

NEWLANDS PROJECT WATER BUDGET

Line		1988 OCAP[1], Base	1988 OCAP, 1992 Assumptions	1988 0CAP, 1992 w/o Additional Acres	1995 Example
1	Irrigated Acreage (acres)	60,900	64,850	61,630	59,075
2	Maximum Headgate Entitlement [2]	226,450	237,485	226,555	206,230
	Distribution System Losses				
	Evaporation:				
3	Canals/Laterals	6,000	6,200	6,000	5,838
4	Regulatory Reservoirs	15,000	7,500	7,500	7,500
	Seepage:				
5	Canals/Laterals	50,000	51,000	48,500	46,481
6	Regulatory Reservoirs	7,000	4,000	4,000	4,000
7	Operational Losses	87,980	40,800	39,400	38,270
8	TOTAL LOSSES [3]	165,980	109,500	105,400	102,089
9	Max. Allowable Diversion[4] (MAD)	392,430	346,985	331,955	308,319
10	Projected Efficiency (%) [5] Assuming 100% Water Use	58.4	68.4	68.2	66.9
11	Expected Headgate Entitlement Unused[6]	20,930	23,700	22,700	13,611
12	Diversion Reduction for Unused Water[7]	25,430	26,500	25,400	15,279
13	Expected Irrigation Diversions[8]	367,000	320,485	306,555	293,040
14	Expected Efficiency (%) [9]	56.0	66.7	66.5	65.7 [10]

1. All values are in acre-feet except where noted. The first 3 columns of numbers come from the 1988 OCAP, Table 1.
2. Derived by multiplying the acreage by the appropriate water duty.
3. In deriving the 1988 OCAP water budget, it was recognized that the District had reduced losses by 7,400 acre-feet prior to 1988.
4. Maximum Headgate Entitlement (line 2) plus Total Losses (line 8).
5. Maximum Headgate Entitlement (line 2) divided by Maximum Allowable Diversion (line 9) multiplied by 100.
6. Water delivery records show that, historically, lands have been irrigated with less than their full entitlement. In the 1988 OCAP base, the unused portion of the entitlement was assumed to be approximately 9 percent; in the 1988 OCAP 10 percent; in the 1995 example 6.6 percent.
7. Unused Water (line 11) plus a proportional share of Operational Loss (line 7).
8. Maximum Allowable Diversion (line 9) minus Diversion Reduction (line 12).
9. Maximum Headgate Entitlement (line 2) minus Unused Water (line 11) divided by Expected Irrigation Diversion (line 13) multiplied by 100.
10. Expected efficiency at 93.4 percent use of headgate entitlement; other entries based on 90 percent.

(2) The MAD will be calculated annually to ensure an adequate water supply for all water right holders whose water use complies with their decreed entitlement and this part. The MAD is the maximum amount of water permitted to be diverted for irrigation use on the Project in that year. It is calculated to ensure full entitlements can be provided, but is expected to significantly exceed Project requirements. The MAD will be established by the Bureau at least 2 weeks before the start of each irrigation season. All releases of water from Lahontan Reservoir and diversions from the Truckee Canal (including any diversions from the Truckee Canal to Rock Dam Ditch) must be charged to the MAD except as provided in §§ 418.23 and 418.35 of this part.

(3) On the basis of the methodology adopted in this part (i.e., actual irrigated acres multiplied by appropriate water duties divided by established project efficiency) an example of the MAD calculated for the projected irrigated acreage as shown in the Newlands Project Water Budget table would be 308,319 acre-feet for the 1995 Example. The sample MAD corresponds

to a system efficiency for full deliveries at 66.9 percent for 1995 actual acres. Target efficiencies must be based on the percentage of maximum headgate entitlement delivered and not on the percent of water supply available.

(4) The table Expected Project Distribution System Efficiency shows the target efficiencies which will be used over the range of irrigated acreage and percent use of entitlement expected in the future. At the beginning of the irrigation season, the target efficiencies from the Expected Project Distribution System Efficiency table used to calculate the MAD will be based on the expected irrigated acreage and expected percent use of entitlement. At the end of the irrigation season, the actual acreage irrigated and actual percent use of entitlement will be used to determine the required efficiency from the Expected Project Distribution System Efficiency. The target efficiencies are read directly from the table if the acreage and use of entitlement values are shown, otherwise the target efficiency must be extrapolated from the table or calculated using the Efficiency Equation. Appendix A of this part shows the calculations used to derive the Efficiency Equation and the efficiency targets.

Expected Project Distribution System Efficiency
(Not Valid Below 75 Percent Headgate Delivery)

Project Acreage	Efficiency Equation A and B values: Effic. = AxD + B		Actual Project Headgate Delivery Expressed as a Percent of Full Entitlement (efficiency equation variable D)											
	A	B	75%	80%	85%	90%	91%	92%	93%	94%	95%	96%	98%	100%
64,850	0.1840	49.02	62.8	63.7	64.7	65.6	65.8	65.9	66.1	66.3	66.5	66.7	67.1	67.4
64,500	0.1842	48.97	62.8	63.7	64.6	65.5	65.7	65.9	66.1	66.3	66.5	66.7	67.0	67.4
64,000	0.1845	48.90	62.7	63.7	64.6	65.5	65.7	65.9	66.1	66.2	66.4	66.6	67.0	67.3
63,500	0.1847	48.83	62.7	63.6	64.5	65.5	65.6	65.8	66.0	66.2	66.4	66.6	66.9	67.3
63,000	0.1850	48.76	62.6	63.6	64.5	65.4	65.6	65.8	66.0	66.2	66.3	66.5	66.9	67.3
62,500	0.1853	48.69	62.6	63.5	64.4	65.4	65.5	65.7	65.9	66.1	66.3	66.5	66.8	67.2
62,000	0.1856	48.62	62.5	63.5	64.4	65.3	65.5	65.7	65.9	66.1	66.2	66.4	66.8	67.2
61,500	0.1858	48.54	62.5	63.4	64.3	65.3	65.5	65.6	65.8	66.0	66.2	66.4	66.8	67.1
61,000	0.1861	48.47	62.4	63.4	64.3	65.2	65.4	65.6	65.8	66.0	66.1	66.3	66.7	67.1
60,500	0.1864	48.39	62.4	63.3	64.2	65.2	65.4	65.5	65.7	65.9	66.1	66.3	66.7	67.0
60,000	0.1867	48.31	62.3	63.3	64.2	65.1	65.3	65.5	65.7	65.9	66.1	66.2	66.6	67.0
59,500	0.1870	48.24	62.3	63.2	64.1	65.1	65.3	65.4	65.6	65.8	66.0	66.2	66.6	66.9
59,000	0.1873	48.16	62.2	63.1	64.1	65.0	65.2	65.4	65.6	65.8	66.0	66.1	66.5	66.9
58,500	0.1876	48.08	62.1	63.1	64.0	65.0	65.1	65.3	65.5	65.7	65.9	66.1	66.5	66.8
58,000	0.1879	47.99	62.1	63.0	64.0	64.9	65.1	65.3	65.5	65.7	65.8	66.0	66.4	66.8
57,500	0.1882	47.91	62.0	63.0	63.9	64.9	65.0	65.2	65.4	65.6	65.8	66.0	66.4	66.7
57,000	0.1886	47.83	62.0	62.9	63.9	64.8	65.0	65.2	65.4	65.6	65.7	65.9	66.3	66.7
56,500	0.1889	47.74	61.9	62.9	63.8	64.7	64.9	65.1	65.3	65.5	65.7	65.9	66.3	66.6
56,000	0.1892	47.66	61.8	62.8	63.7	64.7	64.9	65.1	65.3	65.4	65.6	65.8	66.2	66.6
55,500	0.1895	47.57	61.8	62.7	63.7	64.6	64.8	65.0	65.2	65.4	65.6	65.8	66.1	66.5
55,000	0.1899	47.48	61.7	62.7	63.6	64.6	64.8	64.9	65.1	65.3	65.5	65.7	66.1	66.5
54,500	0.1902	47.39	61.7	62.6	63.6	64.5	64.7	64.9	65.1	65.3	65.5	65.6	66.0	66.4
54,000	0.1906	47.30	61.6	62.5	63.5	64.4	64.6	64.8	65.0	65.2	65.4	65.6	66.0	66.4
53,500	0.1909	47.20	61.5	62.5	63.4	64.4	64.6	64.8	65.0	65.1	65.3	65.5	65.9	66.3
53,000	0.1913	47.11	61.5	62.4	63.4	64.3	64.5	64.7	64.9	65.1	65.3	65.5	65.9	66.2
52,500	0.1916	47.01	61.4	62.3	63.3	64.3	64.4	64.6	64.8	65.0	65.2	65.4	65.8	66.2
52,000	0.1920	46.91	61.3	62.3	63.2	64.2	64.4	64.6	64.8	65.0	65.2	65.3	65.7	66.1

(5) Adjustments in the MAD must be made by the Bureau each year based on changes in irrigated eligible land from the prior year and subsequent decisions concerning transfers of Project water rights, using the methodology established in this section.

(6) If the MAD for a given year will not meet the water delivery requirements for the eligible land to be irrigated due to weather conditions, canal breaks, or some other unusual or unforeseen condition, the District must ask the Bureau for additional water.

(i) The District's request must include a written statement containing a detailed explanation of the reasons for the request.

(ii) The Bureau must promptly review the request and after consultation with the Federal Water Master and other interested parties, will determine if the request or any portion of it should be approved. The Bureau will make reasonable adjustments for unforeseen causes or events but will not make adjustments to accommodate waste or Project inefficiency or other uses of water not in accordance with this part or with State and Federal law.

(iii) The Bureau will then notify the District of its determination. If the District does not agree with the Bureau's decision, it may seek judicial review. The Bureau and the District will seek to expedite the court proceeding in order to minimize any potential adverse effects.

(b) *Maximum allowable efficiency debits (MED).* The debits in Lahontan Reservoir storage from the District's actual conveyance efficiency not achieving the target efficiency can accumulate over time. If these amounts of borrowed storage get too large they may not be offset later by increased efficiencies and may severely affect the District's water users by imposing an added "drought" on top of a real one. Therefore, the maximum efficiency debit cushion is set at 26,000 acre-feet. However, unlike the MAD, it only applies to the subsequent year's operation. The MED is approximately 9 percent of the headgate entitlements.

MONITORING DIVERSIONS

§ 418.14 Recordkeeping requirements.

(a) By the end of each month, the District must submit to the Bureau's Lahontan Area Office reports for the previous month which document monthly inflow and outflow in acre-feet from the Truckee and Carson divisions of the Project for that month. Reports must include any data the Bureau may reasonably require to monitor compliance with this part.

(b) Accounting for farm headgate deliveries must be based on the amount of water actually delivered to the water user. Project operations must provide for the amount of water ordered and the distribution system losses.

(c) The District must keep records of all domestic and other water uses showing the purpose and amount of water usage for each entity. The District must make the records available for review by the Bureau upon request. The Bureau may audit all records kept by the District.

§ 418.15 Operations monitoring.

(a) The Bureau will work with the District to monitor Project operations and will perform field inspections of water distribution during the irrigation season.

(1) Staff members of the Bureau's Lahontan Area Office and the District will meet as often as necessary during the irrigation season after each water distribution report has been prepared to examine the amounts of water used to that point in the season.

(2) On the basis of the information obtained from field observations, water use records, and consultations with District staff, the Bureau will determine at monthly intervals whether the rate of diversion is consistent with this part for that year.

(3) The District will be informed in writing of suggested adjustments that may be made in management of diversions and releases as necessary to achieve target efficiencies and stay within the MAD.

(b) Project operations will be monitored in part by measuring flows at key locations. Specifically, Project diversions (used in the calculations under §418.18 below) will be determined by:

(1) Adding flows measured at:

(i) Truckee Canal near Wadsworth—U.S. Geological Survey (USGS) gauge number 10351300;

(ii) Carson River below Lahontan Dam—USGS gauge number 10312150;